



AQW ALUMINA 2024

12TH INTERNATIONAL ALUMINA QUALITY WORKSHOP

22-25 APRIL 2024 | Grand Hyatt - Dubai, UAE

"Beyond the Cycle: Pathways to a Circular Economy"

Hosted by:



www.alumina2024.com

Sunday, 21 April 2024

PROVISIONAL PROGRAM

15:00 - 18:00 Registration Opens

19:00 - 21:30 Welcome Reception - Duck Garden, Grand Hyatt

Monday, 22 April 2024

07:30 - 08:30 Registration

08:30 - 10:30 Opening Plenary Session

Plenary Hall (Baniyas Hall 2)

08:30 - 08:40 Welcome: Steven Rosenberg (AQW Chair)

08:40 - 09:10 **Plenary 1 and Formal Opening:** Charting a Sustainable Future with Emirates Global Aluminium

Zaher AlHabtari, UAE

09:10 - 09:50 **Plenary 2:** Prospective Pathways to Net-Zero Alumina Production

Prof. Gus Nathan, Australia

09:50 - 10:30 **Plenary 3:** The Aluminium Industry and Sustainability – A Global Perspective

Miles Prosser, UK

10:30 - 11:00 Morning Tea (Exhibition Hall)

Concurrent Technical Sessions

Session Room 1 (Baniyas Hall 2)

Session Room 2 (Baniyas Hall 1)

11:00 - 12:30 **ENERGY**
Session Chair: Michael Wheatland

11:00 - 11:30 **Keynote:** Alumina Production Growth in a Decarbonised World- **Andrew Furlong, Australia**

11:30 - 11:50 Decarbonising Rio Tinto's Australian Alumina Refineries - **Mike Sisley, Australia**

11:50 - 12:10 Reviving the Graphical Heat Balance Method: A Strategic Tool for Energy Efficiency and Decarbonization in the Alumina Industry - **David Southwood - Jones, UAE**

12:10 - 12:30 Solid Bio Pellet Fuels as an Alternative to Coal - **Luke Kirwan, Australia**

11:00 - 12:30 **RESOURCES**
Session Chair: John McFeaters

11:00 - 11:30 **Keynote:** Amazonian Bauxite Beneficiation Using a Reverse Flotation Circuit - **Allan Reis, Brazil**

11:30 - 11:50 ReAL (Recycling Aluminum): Sustainable Recycling Technology for Multilayer Packaging - **Roberto Seno Junior, Brazil**

11:50 - 12:10 Bauxite Ore Body Knowledge and Digestion Extraction Efficiency for Worsley Granitic Ore Transition **Elaine Tolentino, Australia**

12:10 - 12:30 Multipurpose Dynamic Simulator: Application of Industry 4.0 **Sushil Jadhav & Saif Bin Rahal, UAE**

12:30 - 13:30 Lunch (Exhibition Hall)

*Program subject to change

Concurrent Technical Sessions

Session Room 1 (Baniyas Hall 2)		Session Room 2 (Baniyas Hall 1)	
13:30 - 15:00	ENERGY Session Chair: Emilio Pai	13:30 - 14:30	RESOURCES Session Chair: Luke Kirwan
13:30 - 14:00	Keynote: Process Steam Carbon Reduction in a High-Temperature Alumina Refinery- Mike Sisley, Australia	13:30 - 13:50	New tool for Environmental Safety Diagnosis: Chemical Signature of an Alumina Refinery - Raisa Cardoso, Brazil
14:00 - 14:20	Vaudreuil Refinery's Electric Boiler Journey Michael Reid, Canada	13:50 - 14:10	Application of NIR Mineral Phase Analysis in Bauxite Ore in the Example of Chalco Petra Mühlen, Switzerland
14:20 - 14:40	Reduction and Elimination of Digestion Steam in the Bayer Refinery with KX Reboiler-Condenser Heat Exchangers Rob Clegg, Senegal	14:10 - 14:30	A Comparative Approach Using an Amazonian Native Fish (Hyphessobrycon heterohabdus) and an Exotic Fish (Danio rerio) Species as Model Organisms on Understanding Sulfate Effects Raisa Cardoso, Brazil
14:40 - 15:00	Evaporation Retrofit with Mechanical Vapour Recompression – A Pathway to Decarbonisation Andrew Furlong, Australia		

15:00 - 15:30 Afternoon Tea (Exhibition Hall)

Concurrent Technical Sessions

15:30 - 17:00	ENERGY Session Chair: Mike Sisley	15:30 - 17:00	NEW RESEARCH Session Chair: Steven Rosenberg
15:30 - 16:00	Keynote: Alumina Calcination Using Renewable Electricity for Zero Emissions Alumina Production - Michael Wheatland, Australia Darren Bambrick, Australia	15:30 - 16:00	Keynote: Impact of Particle Morphology on Hydrate Size Distribution Steven Psaltis, Australia
16:00 - 16:20	Feasibility Study of Steam Recovery from Steam Calciner for the Digestion Process - Woei Saw, Australia	16:00 - 16:20	Factors Affecting Gibbsite Precipitation Rate - Eric Boom, Australia
16:20 - 16:40	Heat and Water Recovery from Alumina Calciner Stack Offgas: A Technology Review - Steven Yu, Germany	16:20 - 16:40	Hydrate and Alumina Breakage Index - Maitha AlQaydi, UAE
16:40 - 17:00	Mechanical Vapor Recompression in the Bayer Process: A Feasibility Study - Errol Jaeger, USA	16:40 - 17:00	Development of Solvent Extraction Rig for Solvay's MAXYIELD Technology to Remove Organics from Bayer Process Airong Song, USA

17:00 - 18:00 Exhibition

FREE EVENING

Tuesday, 23 April 2024

07:30 - 08:30	Registration	Plenary Hall (Baniyas Hall 2)
08:30 - 10:30	Second Plenary Session	
08:30 - 08:40	Announcements: Markus Graefe , Conference Chair	
08:40 - 09:10	Platinum Sponsor Address (Hydro): Hydro Bauxite & Alumina Innovation Ecosystem	Rafael Costa, Brazil
09:10 - 09:50	Plenary Address 4: (Dramalysis): To be or Not to be – The Circular Story...	Israel Oyelumade , UK
09:50 - 10:00	Gold Sponsor Address (SNF Water Science): SNF Company Overview & the Alumina Specialty Chemicals Segment	Remi Valero, France
10:00 - 10:10	Gold Sponsor Address (Rito Tinto): Repowering Gladstone	Luke Kirwan, Australia
10:10 - 10:30	Diamond Sponsor Address (EGA): EGA's Technology Development and Transfer Journey	Abdalla AlZarooni, UAE
10:30 - 11:00	Morning Tea (Exhibition Hall)	

Concurrent Technical Sessions

Session Room 1 (Baniyas Hall 2)		Session Room 2 (Baniyas Hall 1)	
11:00 - 12:30	BAUXITE RESIDUE Session Chair: Sebastien Fortin	11:10 - 12:30	RESOURCES Session Chair: Ian Stephenson
11:00 - 11:30	Keynote: Holistic Resue of Bauxite Residue – Pilot Results from the Removal Project - Panagiotis Davris, Greece	11:10 - 11:30	Destruction of Bayer Process Oxalates and Caustic Regeneration via Hydrothermal Treatment John Anawati, Canada
11:30 - 11:50	Sumitomo's Differential Extraction Process Revisited: Operation Results, Potentials and Challenges for Sustainable Alumina Refineries - Takuo Harato, Japan	11:30 - 11:50	Real-time Meteorological Monitoring as a Safety Strategy and Risk Assessment in the Industrial Sector - Raisa Cardoso, Brazil
11:50 - 12:10	Conversion to Filtered Tailings: Commissioning and Ramp-up of Rio Tinto Vaudreuil's Bauxite Residue Filtration Plant - Simon Gravel, Canada	11:50 - 12:10	A Mathematical Approach for Estimating Silica Reduction in Bauxite Desliming with Hydrocyclones - Allan Reis, Brazil
12:10 - 12:30	Passive Cation Exchange and Nutrient Bioavailability of Bayer Process Feldspathoids under Simulated Arid, Irrigated Conditions - Daniel Propes, USA	12:10 - 12:30	Efficiency of Gallium Extraction from Bauxite - Fatema AlMazrouei & Supratim Dey, UAE
12:30 - 13:30	Lunch and Exhibition		

Concurrent Technical Sessions

Session Room 1 (Baniyas Hall 2)		Session Room 2 (Baniyas Hall 1)	
13:30 - 14:40	BAUXITE RESIDUE Session Chair: Ronan Courtney	13:30 - 15:00	PROCESS DEVELOPMENT Session Chair: Jürgen Hahn
13:30 - 14:00	Keynote: Production of Manufactured Soil (Turba) from Bauxite Residue - An Overview of its Development Richard Haynes, Australia	13:30 - 14:00	Keynote: 40 Years of Process Simulation with a Focus on Energy and Carbon - John McFeaters, USA
14:00 - 14:20	Exploring the Registration of Bauxite Residue Under Europe's REACH Regulation - Konstantinos Kollias, Belgium	14:00 - 14:20	Modelling Impeller Erosion in Alumina Precipitators - Lachlan Graham, Australia
14:20 - 14:40	Autoclaved Monoliths Incorporating Large Contents of Residues from the Alumina Industry - Fabio Oliveira, Belgium	14:20 - 14:40	The Design and Implementation of Sized Split Digestion in Alcoa - Ian Stephenson, Australia
		14:40 - 15:00	Scaling Rate Measurement Using FTIR with ATR Accessory - Eric Boom, Australia

15:00 - 15:40 Tea / Exhibition

Concurrent Technical Sessions

15:40 - 16:50	BAUXITE RESIDUE Session Chair: Markus Graefe	15:40 - 17:00	PROCESS DEVELOPMENT Session Chair: Roberto Seno
15:40 - 16:10	Keynote: Is Modified Bauxite Residue an Appropriate Soil Forming Ingredient Ronan Courtney, Ireland	15:40 - 16:00	Oxalate Process Optimisation in the Bayer Refinery - Alistair Gillespie, Australia
16:10 - 16:30	Removing and Recycling the Coarse Fraction of Bauxite Residue: Our Approach for Vaudreuil Alumina Refinery - Sebastien Fortin, Canada	16:00 - 16:20	Development of ATR-FTIR System for Bayer Process Liquor Analysis - Elaine Tolentino, Australia
16:30 - 16:50	Physical Properties of Manufactured Soil (Turba) Produced from Bauxite Residue Richard Haynes, Australia	16:20 - 16:40	Hydrate Particle Size Distribution Control in a Greenfield Alumina Refinery - Suresh Yadav, UAE
		16:40 - 17:00	Novel Methodology to Evaluate Antifoam Programs from Nalco Water Applied in the Alumina Trihydrate Precipitation Daniel Bortoleto, Brazil

17:00 - 18:00 Exhibition

19:00 - 22:00 Dubai Nightscape Networking Dinner - The Viewing Deck, The Palace Downtown
**Separate registration required for this event*

Wednesday, 24 April 2024

07:30 - 08:30 Registration

Concurrent Technical Sessions

Session Room 1 (Baniyas Hall 2)		Session Room 2 (Baniyas Hall 1)	
08:30 - 10:00	ENERGY Session Chair: Michael Reid	08:30 - 10:00	PROCESS DEVELOPMENT Session Chair: Jörg Ruster
08:30 - 08:40	Announcements	08:30 - 08:40	Announcements
08:40 - 09:00	Diversity of Applications for the Mechanical Vapour Recompression Technology Francois Delannoy, France	08:40 - 09:00	Application of Split Growth in a Greenfield Alumina Refinery Sami Albastaki, UAE
09:00 - 09:20	Assessment of Multi-stage Mechanical Vapour Recompression Process for Decarbonizing Steam Generation in an Alumina Refinery - Siyun Ning, Australia	09:00 - 09:20	Filtration of Digester Blow-off - An Option for the Refinery Design of the Future - Jürgen Hahn, Germany
09:20 - 09:40	Preliminary Evaluation of Retrofitting an Alumina Flash Calciner from Natural Gas to Hydrogen - Daniel Ang, Australia	09:20 - 09:40	Production of Sodium Carbonate and Alumina from Dawsonites - Andrey Panov, Russia
09:40 - 10:00	Halophytic Biomass Conversion: Co-Pyrolysis of Salicornia and Date Palm (Phoenix dactylifera) for Energy Products Waqas Ahmed, UAE	09:40 - 10:00	Updated Improved Low Temperature Digestion (ILTD) Process in the Face of the Sustainable Development Goals György Bánvölgyi, Hungary

10:00 - 10:40 Morning Tea / Exhibition

Concurrent Technical Sessions

10:40 - 12:10	NEW RESEARCH Session Chair: Alistair Gillespie	10:40 - 11:50	PROCESS DEVELOPMENT Session Chair: David Southwood-Jones
10:40 - 11:10	Keynote: Synthesis, Characterization and Dissolution of Bauxite Residue (BxR) Components Relevant to Acid Neutralization Pál Sipos, Hungary	10:40 - 11:00	Continuous Optical Measurement and Real-time Control of Bauxite Particle Size Distribution in the Grinding Process Damien Boudeville, Canada
11:10 - 11:30	Biomass Pyrolysis: Potential for Bauxite Residue Amendment and Mitigation of Climate Change - Yassir Makkawi, UAE	11:00 - 11:20	Application of Ultrasonic Attenuation for Online Monitoring of Particle Size in Bayer Red Mud Slurries Leanne Sharp, Australia
11:30 - 11:50	Mechanochemically Modified Dissolution of Kaolinities in Industrial Spent Bayer Liquor - Márton Szabados, Hungary	11:20 - 11:40	Enzymatic Dextran Production and Utilization in Bayer Process - Francois Voelker, France
11:50 - 12:10	Cation Exchange in Feldspathoid Formed in Carbonate-containing Bayer Liquors Chiawei Lin, USA	11:40 - 11:50	Wrap-up and Announcements Steven Rosenberg

12:10 - 13:10 Lunch and Exhibition

Technical Sessions

Plenary Hall (Baniyas Hall 2)

13:10 - 14:30

NEW RESEARCH Session Chair: Steven Psaltis

13:10 - 13:30	Formation of Sodalite and Cancrinite from Illite Under Bayer Digestion Conditions	Jose Gomes, Australia
13:30 - 13:50	Synthesis and Neutralization Reactions of Katoite Phases	Yvette Szabó, Hungary
13:50 - 14:10	Hydrolysis and Neutralization Processes of Hydroxido Sodalite	Bence Kutus, Hungary
14:10 - 14:30	Wrap-up and Announcements	Markus Graefe

14:30 - 16:00 Afternoon Tea and Exhibition

19:30 - 22:30 AQW GALA DINNER AND AWARDS CEREMONY - Baniyas Ballroom, Grand Hyatt

Thursday, 25 April 2024

Technical Tours

Group One (Al Taweelah Refinery and Al Taweelah Smelter)

08:00 - 09:30	Buses (2) depart Grand Hyatt
09:30 - 09:50	Greeting at HQ and Safety Inductions
09:50 - 10:00	Bus Transfer / Travel to Ref. or Smelter
10:00 - 11:20	Refinery or Smelter Tour
11:20 - 11:30	Return to HQ

Group Two (Al Taweelah Refinery)

10:00 - 11:30 Bus (1) departs Grand Hyatt

11:30 - 12:30 Lunch / Refreshments / BxR garden

12:30 - 14:00	Bus returns to Grand Hyatt	12:30 - 12:50	Greeting at HQ and Safety Inductions
		12:50 - 13:00	Bus Transfer / Travel to Refinery
		13:00 - 14:20	Refinery Tour
		14:20 - 14:30	Return to HQ
		14:30 - 16:00	Bus returns to Grand Hyatt

Friday, 26 April 2024

Al Manzil Meeting Room

08:30 - 17:00 AQW Workshop Sponsored by the International Aluminium Institute and South 32

08:30 - 09:00	Opening Session / Introduction
09:00 - 09:30	Workshop Process, Assumptions and Ground Rules
09:30 - 10:00	Workshop Session 1: Scope and Objectives

10:00 - 10:15 Break

10:15 - 11:30 **Workshop Sessions 2-4**

11:30 - 12:00 Joint Session - Process Check

12:00 - 13:00 Lunch

13:00 - 15:15 **Workshop Sessions 5-7**

15:15 - 15:45 Break and Results Collation

15:45 - 16:15 Results Sharing, Feedback and Q&A

16:15 - 16:45 Break

16:45 - 17:00 **Wrap-up Session and Next Steps**